Remarks

I. Substitute Power of Attorney and Information Disclosure Statement

Applicants previously submitted to the PTO (i) a Substitute Power of Attorney, authorizing the undersigned to prosecute the present application and to transact all business in the U.S. Patent and Trademark Office connected therewith, and (ii) an Information Disclosure Statement. However, in the present Office Action, the Examiner made no record of (i) or (ii). Applicants attach hereto as Exhibit 1 a copy of the Submission of Substitute Power of Attorney and Information Disclosure Statement dated June 7, 2001, and a return postcard acknowledging the receipt thereof by the PTO. Again, it is respectfully requested that the Submission be made of record.

II. Supplemental Information Disclosure Statement

Applicants submit herewith a Supplemental Information Disclosure Statement (IDS) by Applicant (2 pages), listing references which are or may be material to the examination of the subject application. Copies of the listed references are enclosed. It is respectfully requested that they be made of record in the file history of the application.

Identification of references in the IDS is not to be construed as an admission by applicants or attorneys for applicants that such references are available as "prior art" against the subject application. The right is reserved to antedate any listed reference in accordance with standard procedures. The required fee of $180 pursuant to 37 CFR 1.17(p) is also enclosed.

III. Amendment to the Drawings

Applicants have renumbered previously designated figures 8-11. Figure 8 has been renumbered and is now figure 8B. Figure 9 has been renumbered and is now figure 8C. Figure 10 has been renumbered and is now figure 11A. Figure 11 has been renumbered and is now figure 11B. Further, figures 8B and 12 have been amended. No new matter has been introduced. Accordingly, marked-up copies of the amended figures with the amendments indicated in red are enclosed, along with a Letter to the Official Draftsperson.

New figures 8A, 9 and 10 have been added to better illustrate the embodiments. No new matter has been introduced. The Letter to the Official Draftsperson also requests that new figures 8A, 9 and 10 be included in the application. A copy of each of these new figures, which is circled in red, is also enclosed.

IV. Amendment to the Specification

The specification has been amended to properly reference figures 8-12, as amended. No new matter has been introduced. Appendix A includes markings for showing the changes made to the specification.

V. Rejection of Claims 1- 35 Under 35 U.S.C. §103

Claims 1, 2, 5-8 and 10-28 were rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 5,987,454 issued to Hobbs.

Claims 1-35 have been amended to improve their form. Accordingly, a version of these amended claims with markings to show the changes made is attached hereto as Appendix B.

An aspect of the invention, represented by claims 1 and 7, is directed to a technique for updating records that are accessed in response to a search query. The technique includes searching a database for database records responsive to the query, and searching an update database associated with the database for database records, and excluding from the search results database records that correspond to one or more of the update records if the update records include an indication that the database record should be excluded.

Database records may be excluded from a search result output for various reasons. For example, when a query generates duplicate database records (i.e., records that are the same or substantially similar), a user's time is often wasted by accessing each of these records. Because the claimed invention excludes records based on a predetermined setting, circumstances in which the user receives extraneous query output are effectively controlled. Further, the claimed invention does not require receipt of two sets of input from the user to perform the query

searching and exclusion of designated records. Rather, the claimed invention allows performing both operations using the same, or a subset of the, search request data provided by the user. Accordingly, the amount of time to receive and enter the search request data provided by the user is minimized. Further, because the search request data content used for both query searching and record exclusion remains the same (or substantially the same), the accuracy and timeliness of the results (i.e., output data) are optimized.

Hobbs discloses a technique for selecting multimedia information from databases that can be accessed via the Internet. Hobbs further discloses an apparatus for dynamically augmenting contents of at least one file of information on a first network by using a query to search the contents of a second network. (Col. 8, lines 30-52). After the search is performed on the second network, graphic symbols are displayed "for enabling the user to select one of a plurality of databases." (Col. 10, lines 4-19). However, nowhere does Hobbs teach or suggest "excluding" records from the search results, as claims 1 and 7 recite. The deletion of records is only mentioned by Hobbs in the context of explaining the prior art problem of "dead ends." The reference to deleted search results does not teach or suggest excluding database records that have been identified in response to a user's query. Instead, these "dead ends" are records that no longer exist, but for which the link associated to the deleted file is sent to a user. Because the record is previously deleted (i.e., deleted prior to any searching by a user), the reference to "dead ends" by Hobbs does not meet the limitations of excluding database records from a search result as in claims 1 and 7.

In fact, Hobbs teaches away from the invention by "augmenting" content. (Col. 7, lines 34 - col. 9, line 37; col. 26, line 21 - col. 34, line 61) as opposed to excluding database records from a search result as in the claimed invention. As such, claims 1 and 7, together with their dependent claims, are patentable over Hobbs.

Another aspect of the invention, represented by claims 12, 20 and 29, is directed to a technique for routing search requests. The technique includes receiving a search request at a receiving server, searching a routing database to determine whether the search request should be routed to one or more databases accessible by the receiving server, and if it is determined that the

search request should be routed to the one or more databases accessible by the receiving server, searching the databases of the receiving server. Search results are then returned to the user.

As described above, Hobbs discloses a technique for selecting multimedia information from databases that can be accessed via the Internet. Hobbs further discloses a proxy server that runs a computer application which includes "look-up tables" that comprise authentication data for access to database and the network addresses of a plurality of databases. (Col. 10, lines 44-61). Although Hobbs discloses network protocol which is addressed to a several servers (e.g., Document Server, Proxy server, HTTP server and Database Server (col. 10, line 5-43)), it does not teach or suggest routing a search request to perform a search query upon determining that the search request should be routed to the receiving server (or a second server), as claims 12, 20 and 29 recite. Rather, Hobbs uses the servers to facilitate user accessibility to one or more databases. As such, claims 12, 20 and 29, together with their dependent claims, are patentable over Hobbs.

Moreover, claims 3, 4 and 9 were rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Hobbs in view of U.S. Patent No. 6,243,715 to Bogantz et al. In any event, these claims are patentable over Hobbs in view of Bogantz by virtue of their dependency from claims 1 and 7, which are patentable for the reasons set forth above.

In addition, claims 21-22, 24-25 and 29-35 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hobbs in combination with Spencer.

Spencer is directed to a technique for retrieving information from multiple document databases. Information is retrieved from these multiple databases by routing a query "to all of the database computers 102 and determining which of the document databases 103 have documents relevant to the query." Col. 18, lines 33-36; see also Abstract ("retrieving . . . a set of documents that globally satisfy the query"; "individual document databases determine their query results, which are then merged into a global set of documents satisfying the query"). Thus, Spencer actually teaches away from the invention by performing a global search, as opposed to searching a routing database to determine whether the search request should be routed to one or more databases accessible by the receiving server, as claims 20 and 29 recite. As such, claims 20

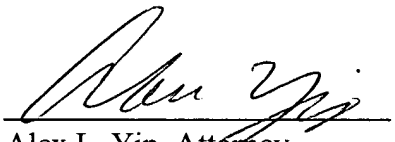
and 29, together with their dependent claims, are patentable over Hobbs in combination with Spencer.

In view of the foregoing, each of claims 1-35, as amended, is believed to be in condition for allowance. Accordingly, reconsideration of these claims is requested and allowance of the application is earnestly solicited.

Respectfully,

Michael A. Kepler
Christopher A. Huey
Runping Qi
Christopher A. Wake

Dated: March 5, 2002
Enclosures

By: 
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212-836-7363

Appendix A - Amendment to Specification with Markings to Show Changes Made

On page 6, after line 8, **insert** the following paragraph:

FIG. 8A illustrates a network of databases according to an embodiment of the invention.

Replace the paragraph on page 6, lines 9-10, with the following paragraph:

FIG. [8] 8B illustrates a network of databases according to [one illustrative] another embodiment of the invention.

On page 6, after line 10, **insert** the following paragraph:

FIG. 8C illustrates a network of databases according to yet another embodiment of the invention.

Replace the paragraph on page 6, lines 15-16, with the following paragraph:

FIG. [11] 11A is an illustration of an update database record in an update database for a database.

On page 6, after line 16, **insert** the following paragraphs:

FIG. 11B is an illustration of an update search-routing database record according to an embodiment of the invention.

FIG. 12 is a flow chart illustrating a record update process according to an embodiment of the invention.

Replace the paragraph on page 15, lines 5-13 with the following paragraphs:

In the example illustrated in FIG. [8] 8A, the New York office 201 includes at least four databases: New York database 205 and server 208 "Larry" having informational records associated with New York; a New Jersey database 206 and database server 209 "Moe"

having information records associated with New Jersey; and an update database 207 and database server "Curly" having records which have information to update particular records in the New York or New Jersey databases. Upon receipt of requests from a client, these database servers search the databases for selected records and pass them back over the network. A plurality of client terminals 213, 214 are provided through which requests are received and fulfilled.

Replace the paragraph on page 15, lines 21-27 with the following paragraph:

In the example shown in. FIG. [8] 8A, the Los Angeles office 202 has a CA database 215 database server "Kato" 216. Like the New York office, the Los Angeles office also has a search routing database 217 and proxy server "Hank" 218. The San Francisco office 203 in this example only has a search routing database 230 and a proxy server "Oscar" 231. The Seattle office has only a Washington database 234 and database server "Joe" 235. As with the New York office, each of the Los Angeles, San Francisco and Seattle offices have client terminals 219, 220, 232, 233, 236, 237 through which requests are received and fulfilled.

Replace the paragraphs on page 17, lines 8-32 with the following paragraphs:

An example of a set of search routing tables using encapsulated complexity is illustrated in FIG. [8] 8A. As explained in connection with FIG. 4, applying the modified search to a search routing table, a route is identified for the original search request through the database network. Examples of search routing tables corresponding to the system illustrated in FIG. [8] 8A are provided. Table 251 is an example of a search routing table for the New York office 201. Table 251 would be maintained on search routing database 211. Table 252 is an example of a search routing table for the Los Angeles office 202. Table 252 would be maintained on search routing database 217 in the Los Angeles office 202. Table 253 is an example of a search routing table for the San Francisco office 203 and would be maintained on search routing database [217] 230 in the San Francisco office 203. The Seattle office 204, without a search routing database or proxy server, would not have a corresponding search routing table.

Suppose a search request is entered via client terminal one 232 in San Francisco for a New York telephone number for a café named "Joe's Café." Because a state is supplied with the request, a modified search request is generated by the system with the state field filled in with the data "NY." Proxy server "Oscar" [218] 231 would receive the modified request and search search-routing database 230 for responsive routing directions. Entry 260 in search routing table 253 in search routing database 230 would return "Stooges" database as the appropriate database to search for data responsive to the modified request.

The system would then send over the WAN the original search request to the Stooges proxy server 212 in the New York office 201. The Stooges proxy server in the New York office does not know the difference between a search request generated at a remote site transmitted over the WAN versus the same original search [requested] request generated by a local user at client terminal one 213. Thus, the Stooges proxy server 212 will process the original search request received from the San Francisco office 203 just as if it had received the request via client terminal one 213.

Replace the paragraphs on page 18, lines 13-32 with the following paragraphs:

Certain offices may not include the capability to search remotely. Referring to the example shown in FIG. [8] 8A, the Seattle office 204 does not include a proxy server or search routing database. Searches received at the Seattle office 204 may only be satisfied by conducting a search on the Washington database 239. The other three offices, New York, Los Angeles and San Francisco, also have the capability to search the Washington database 239.

In addition to the search routing tables in each of the search routing databases 211, 217 and 230, there is defined for each proxy server one or more default routes. Default routes specify how a search request is routed when a modified search request fails to return a route. This typically occurs when either (i) the search request does not include a field that is used for routing; (ii) the search request includes a specified routing field but no data is populating that field; or (iii) there is data in the routing field(s) that is not matched in the corresponding field(s) in the routing database. For example, suppose a search request is received into the

system via the Los Angeles Office 202 (FIG. [8] 8A). If this search request does not have a state field or has a state field but does not have a state specified, the search routing database would return a default route. Generally, the default route is defined to route the request to the data that is available to the servers that are on the local host, in this example, CA database "Kato" 216.

On page 18, after line 32, **insert** the following paragraph:

FIGs. 8B and 8C illustrate further embodiments of database network architectures for performing the query searches, database access and record updates described herein. In Fig. 8C, an index "U" is used to distinguish an update database record from its pre-update counterpart.

Replace the paragraph on page 19, lines 1-14 with the following paragraph:

A flow chart illustrating request processing flow is provided in FIG. 10. The flow chart illustrates how a request is accepted and sent to the appropriate database. At step 261, a search request is received from a client. The search request is inspected to [determined] determine whether it includes [the] a defined "route-by" field(s) (step 262). Although the present invention has been described using the state as the "route-by" field, it is understood to one skilled in the art that any data element or combination of data elements may be used. If the search request does not have a defined "route-by" field or such a field is unpopulated (step 263), then a default route is identified (step [265)] 264) and the original request is submitted to the identified default route (step [267).] 265). If the search request has a populated route-by field (step 263), a search of the search routing database is performed using defined "route-by" fields with the content of the corresponding field(s) in the original request (step [263).] 266). Because this is often a subset of the entire original request, it is often referred to as a "modified search request." If the search of the search routing database returns one or more database identifiers, the original request is submitted to the identified databases for fulfillment (step 267).

Replace the paragraphs on page 20, line 18 - page 21, line 21 with the following paragraphs:

As illustrated in FIG. [8] 8A, an update database is created that corresponds to one or more main databases that the system wants to update (for example, the Curly database has records that are adds and deletes corresponding to records in the Larry and Moe main databases). The system administrators set up the search routing tables such that the update databases are placed on the same routes as the main databases to which they correspond. When a main database is a default route, the update database corresponding to that main database is made part of that default route. Similarly, when a main database is part of a specific route identified in a search routing table, the corresponding update database occurs on the same route. Referring to FIG. [9] 9B, it is noted that any search to database 28, 30, 32 is also routed to update database 28u, 30u and 32u. Turning to the databases shown in Fig. 8A, any search to the New York database is routed to both the main New York database Larry and the update database Curly. Similarly, any search to the New Jersey database is routed to both the main New Jersey database Moe and update database Curly. As a result, a search of the New York database will return both results from the New York database as well as update database.

Updating of records from the search results from the New York and update databases is a further extension to the merge algorithm with duplicate removal. Update is a method defined by which a record can be identified for removal or addition. According to the preferred embodiment, this method can be a defined value in a defined field. FIG. [10] 11A shows an exemplary update database record 34u having a plurality of fields 52u, each field 52u having an associated field identifier 54u and potentially containing data 56u. Similar to the record illustrated in FIG. 2, the update record has six fields 52u for storing data 56u regarding an individual's last name, first name, middle initial; city, state, and telephone number. Update record 26u, 34u contains an additional field that is used by the present invention to perform on-the-fly updating. As depicted in FIG. 10, this additional field is identified as UPDATE_ACTION 201u. The UPDATE_ACTION field 201u is populated with a predefined value. According to the preferred embodiment, when the UPDATE_ACTION field contains a "D" then records are to be deleted. Any other value in the UPDATE_ACTION field constitutes an insertion. It is readily apparent to one of ordinary skill in the art that any appropriate data

structure for the UPDATE_ACTION field and any particular choice of values in the UPDATE_ACTION field could be used in accordance with the principles of this invention.

The present invention accomplishes the appearance of record deletion by implementing an algorithm using a comparison of a database record with an update database record. This technique is shown with reference to Fig. 12. As shown by Fig. 12, in one embodiment, a query search is performed in the same or similar manner as shown in Fig. 5 (steps 70-82). After the identified databases are searched using the original search requests (step 82), the identified update database(s) are searched using the original search request (step. 284). The search results are then returned to the proxy server (step 286). The proxy server assures that in any case where there are one or more database records which are logically duplicate to a update database record (according to the defined matching rules) AND the update database record also includes the defined delete indicator (UPDATE_ACTION = D) (step 288), then NONE of these records are written to the output (step 290).

Replace the paragraphs on page 22, lines 1-14 with the following paragraphs:

Where there are no more records present in the input buffers that match the record in the output buffer, the output mode flag is checked. If it indicates "delete," then the record in the output buffer is discarded and no record is written to the output. If the flag does not indicate "delete", then the record in the output buffer is written to the output (step 292) and the buffer and flag are cleared.

The present invention encompasses a number of additional embodiments and capabilities. One further embodiment of the present invention provides for direct database access on a local host without database servers. More particularly, this embodiment has the proxy server controlling the local databases directly, thus fulfilling the role of database server as well as proxy server. This embodiment takes advantage of the fact that the proxy server generally provides a fully inclusive superset of the functionality of the database server. This particular embodiment is not illustrated in FIG. [8] 8A but would have the Stooges database interfacing

directly with the New York, New Jersey and update database, thereby eliminating the Larry, Moe and Curly database servers.

Appendix B - Amendment to Claims with Markings to Show Changes Made

1. (Amended) A method of updating database records [in databases query results] comprising [the steps of]:

maintaining one or more update databases with a plurality of update records, the update records including at least one indication of whether a database record should be excluded from a search result;

searching a database for database records responsive to a query and returning database records responsive to the query;

searching an update database associated [to] with the database for database records responsive to the query and returning update records responsive to the query; and

excluding from the search results database records that correspond to returned update records [that] if the update records include an indication that the database record should be excluded from the search.

2. (Amended) [A] The method [as in] of claim 1, further comprising [the step of] including in the search results [an] at least one update record that does not include an indication that the database record should be excluded from a search.

3. (Amended) [A] The method [as in] of claim 1, wherein the [at least one] indication [of whether a record should be excluded from a search] comprises [an] at least one field [of the update record capable of being set] configurable to at least one predefined value.

4. (Amended) [A] The method [as in] of claim 1, wherein database records and update records include a plurality of fields, and database records and update records correspond when the fields of a database record are substantially similar to the fields of an update record.

5. (Amended) [A] The method [as in] of claim 1, further comprising [the step of] identifying one or more update databases associated with a database.

6. (Amended) [A] The method [as in] of claim 1, further comprising [the steps of]:

maintaining a search-routing database, said search-routing database including a plurality of search-routing database records comprised of search-routing database fields, said search-routing database fields including a database-identifier field and one or more database fields;

receiving a [first] query from a user, said [first] query comprised of search request data in search request fields of [data] predetermined types;

[extracting data] selecting search request data in at least one of the search fields [from the fields of said first query to form a modified query];

searching said search-routing database for [records responsive to the modified query, and returning] one or more database identifiers, based on the selected search request data; and

routing the [first] query to the databases identified by said database identifiers and the update databases associated therewith.

7. (Amended) A system for updating database records, comprising:

a plurality of databases, said databases including database records having database fields;

one or more update databases, said update databases including update records having update database fields, at least one of the update database fields indicating how to update a database record [retrieved in a search];

a search engine for searching one or more of the databases for database records responsive to a query, [and] returning database records responsive to the [query] query, [a search engine for] searching one or more update databases associated [to] with the databases for update records responsive to the query, and returning update records responsive to the query; and

a sorter for generating [the] results from the search of the [one or more of the] databases and update databases, [the sorter] and excluding from the results database records that correspond to update records [that] if the update records include an indication that the database record should be excluded from the search.

8. (Amended) [A] The system [as in] of claim 7, wherein the [sorter included in the] generated results include at least one update record[s] that [do] does not indicate that [the] at least one database record should be excluded from the search.

9. (Amended) [A] The system [as in] of claim 7, wherein database records and update records correspond when the fields of a database record are substantially similar to the fields of an update record.

10. (Amended) [A] The system [as in] of claim 7, further comprising:

a search-routing database, said search-routing database including search-routing database records comprised of search-routing database fields, said search-routing database fields including a database-identifier field and one or more said database fields;

an input device for [obtaining] receiving a [first] query from a user, said [first] query comprised of search request data in search request fields of [data] predetermined types;

a search router for receiving the query and selecting search request data in at least one of the search fields [forming a modified query, said modified query comprising a subset of the fields of data contained in the first query];

a search engine for searching said search-routing database for [records responsive to the modified query, and returning] one or more database identifiers, said database identifiers identifying one or more [target] databases having database records responsive to said query.

11. (Amended) [A] The system [as in] of claim 10, further comprising a table for identifying one or more update databases associated with one or more [target] databases having database records responsive to said query.

12. (Amended) A method of routing search requests comprising [the steps of]:

receiving a search request at a [first] receiving server, the [first] receiving server having one or more databases accessible for searching;

searching a routing database to [determining] determine whether the search request should be routed to the one or more databases accessible by the [first] receiving server [or to a second server, the second server having one or more databases accessible for searching]; and

[when the search request] if it is determined that [it] the search request should be routed to the one or more databases accessible [by] to the [first] receiving server:[,]

routing the search request to the one or more databases accessible by the [first] receiving server; [and]

searching the one or more databases of the receiving server; and

returning the results of the search[;

otherwise routing the search request to a second server].

13. (Amended) [A] The method [as in] of claim 12, wherein the determining [step] includes [the step of] analyzing the search request to identify one or more items of routing data.

14. (Amended) [A] The method [as in] of claim 12 further comprising [13, wherein the determining step further includes the step of searching a routing database with the identified one or more items of routing data to identify one or more databases to which the search request should be routed] routing the search request to a second server if it is determined that the search request should not be routed to the databases accessible by the receiving server.

15. (Amended) [A] The method [as in] of claim [12,] 14, wherein [the second] said second server is remotely located from the [first] receiving server.

16. (Amended) [A] The method [as in] of claim 12, further comprising [wherein the step of routing the search request to the one or more databases further includes the step of] routing the search request to an update database having a plurality of records for updating one or more of the databases.

17. (Amended) [A] The method [as in] of claim 16, further comprising [the step of] merging the search results returned from the [one or more] databases with the search results returned from the update database.

18. (Amended) [A] The method [as in] of claim [12] 14, further comprising [the step of] routing the search request [by the second server] to the one or more databases accessible by [the second] said second server.

19. (Amended) [A] The method [as in] of claim 18, further comprising [the step of] returning to the [first] receiving server the results of the search obtained [as a result of] in response to the routing of the search request [by the second server] to the one or more databases accessible by [the second] said second server.

20. (Amended) A system for routing search requests comprising:

an input device for receiving a search request; and

a [first] receiving server having one or more databases accessible for searching,[;]

[a second server having one or more databases accessible for searching;]

wherein the [first] receiving server is capable of [receiving a search request and] searching a routing database to [determining] determine whether the search request should be routed to the one or more databases accessible by the [first] receiving server, and [or to a second

server; the first server] routing the search request to the one or more databases accessible by the [first] receiving server [when the search request] if it is determined that [it] the search request should be routed to the one or more databases accessible by the [first] receiving server[; and otherwise the first server routing the search request to the second server].

21. (Amended) [A] The system [as in] of claim 20, [further comprising a routing database] wherein the receiving server determines said search request routing by analyzing the search request to identify one or more items of routing data.

22. (Amended) [A] The system [as in] of claim 21, wherein the [routing database is searched using one or more items of routing data from the search request to identify one or more databases to which the search request should be routed] receiving server routes the search request to a second server if it is determined that the search request should not be routed to the databases accessible by the receiving server.

23. (Amended) [A] The system [as in] of claim [20,] 22, wherein the second server is remotely located from the [first] receiving server.

24. (Amended) [A] The system [as in] of claim [20] 22, wherein the second server routes the search request to the one or more databases accessible by the second server.

25. (Amended) [A] The system [as in] of claim 24, wherein the second server returns the results of the search obtained [as a result of] in response to the routing of the search request to the one or more databases accessible by the second server.

26. (Amended) [A] The system [as in] of claim 20, further comprising an update database having a plurality of records for updating one or more of the databases.

27. (Amended) [A] The system [as in] of claim 26, wherein the [first] receiving server routes the search request to the update database in addition to the one or more databases.

28. (Amended) [A] The system [as in] of claim 27, wherein the [first proxy] receiving server[s] merges the search results returned from the one or more databases with the search results returned from the update databases.

29. (Amended) A method of routing search requests comprising [the steps of]:

[establishing] maintaining a routing database for identifying one or more database [that are appropriate] to search in response to a search request;

receiving [a] the search request;

searching the routing database to determine at least one route[s] to one or more databases [that are appropriate] to search in response to [a] the search request;

if the search of the routing database is successful, routing the search request to a database identified by the routing database; and

in other instances, routing the search request to a database identified by one or more default routes.

30. (Amended) [A] The method [as in] of claim 29, further comprising [the step] analyzing the search request to identify one or more items of routing data.

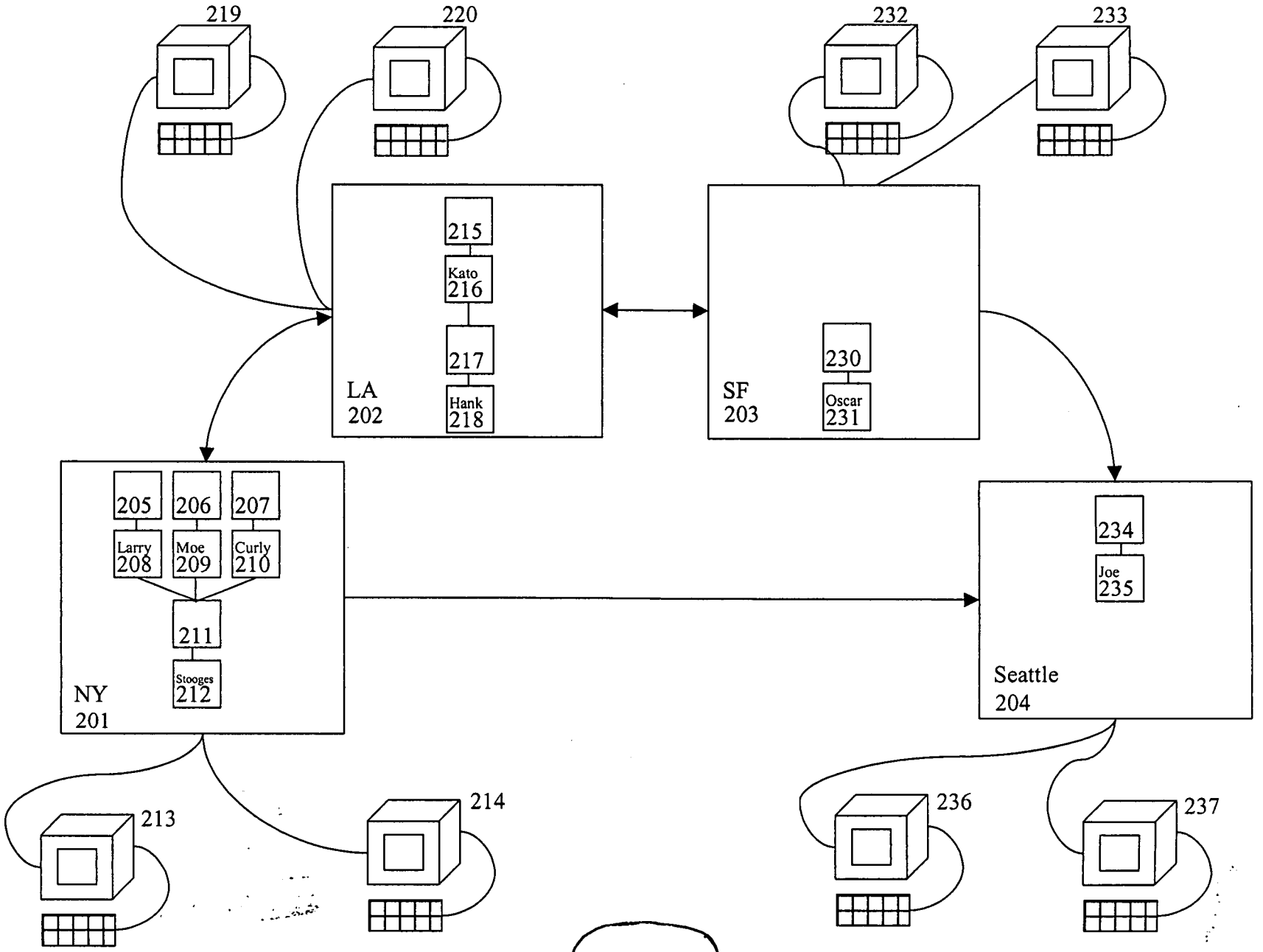
31. (Amended) [A] The method [as in] of claim 30, further comprising [wherein the searching step further includes the step of] searching a routing database with the identified one or more items of routing data to identify one or more databases to which the search request should be routed.

32. (Amended) [A] The method [as in] of claim 29, wherein the routing databases identifies at least one route[s] to one or more database that are appropriate to search in response to [a] the search request.

33. (Amended) [A] The method [as in] of claim 29, wherein the search request is routed to a database identified by the one or more default routes if the search request does not include a field that is used for routing.

34. (Amended) [A] The method [as in] of claim 29, wherein the search request is routed to a database identified by the one or more default routes if the search request includes a field that is used for routing but the field [is empty] has an unspecified value.

35. (Amended) [A] The method [as in] of claim 29, wherein the search request is routed to a database identified by the one or more default routes if the search request includes a field that is used for routing but the data populating the field does not correspond to any entries in the routing databases.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Joe
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Seattle
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237

FIG. 8A

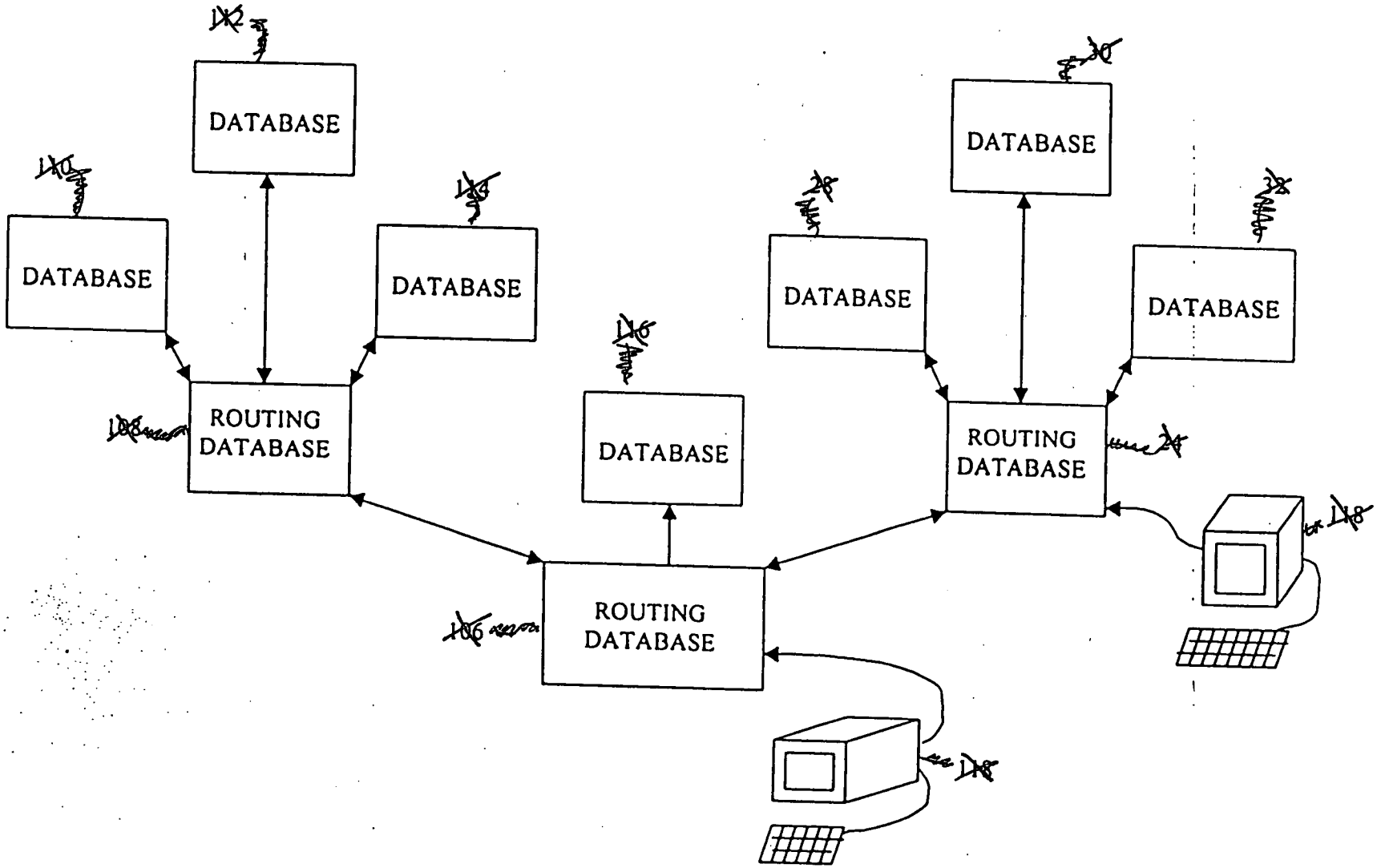
DATABASE
DATABASE
DATABASE
DATABASE
DATABASE
DATABASE
DATABASE
ROUTING DATABASE
ROUTING DATABASE
ROUTING DATABASE

FIG. 8B

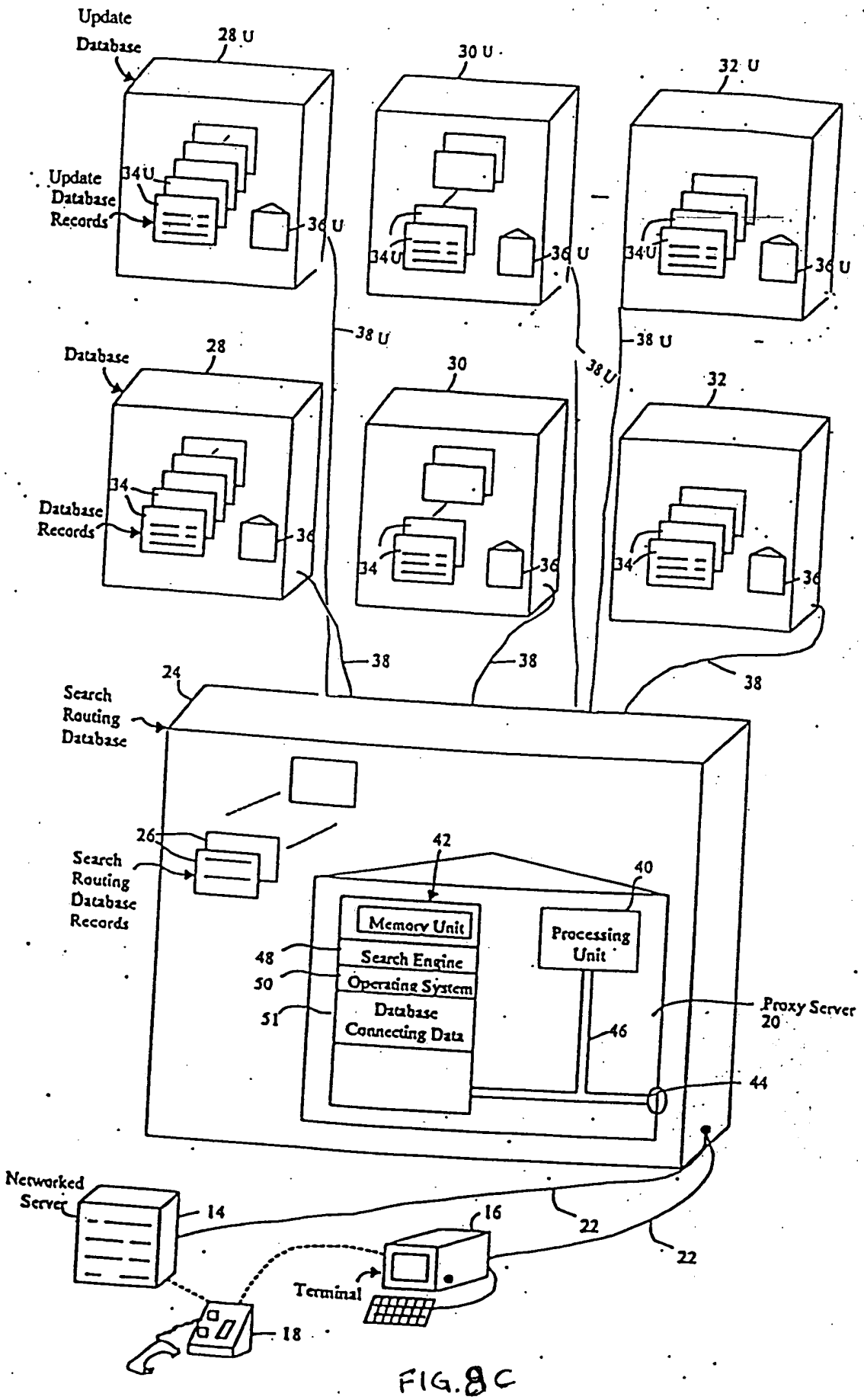
Update Database
28 U
30 U
32 U
Update Database Records
34 U
36 U
38 U
Database
28
30
32
Database Records
34
36
38
24
Search Routing Database
26
Search Routing Database Records
42
40
Memory Unit
Search Engine
Operating System
Database Connecting Data
Processing Unit
48
50
51
46
44
Proxy Server 20
Networked Server
14
16
22
Terminal
18

FIG. 8C

251

New York Office

City	State	Database Server
New York	NY	Larry
New York	NY	Curly
Los Angeles	CA	Hank
San Francisco	CA	Oscar

252

Los Angeles Office

City	State	Database Server
Los Angeles	CA	Kato
New York	NY	Stooges
San Francisco	CA	Oscar

253

San Francisco Office

City	State	Database Server
New York	NY	Stooges
Los Angeles	CA	Hank

260

FIG. 9

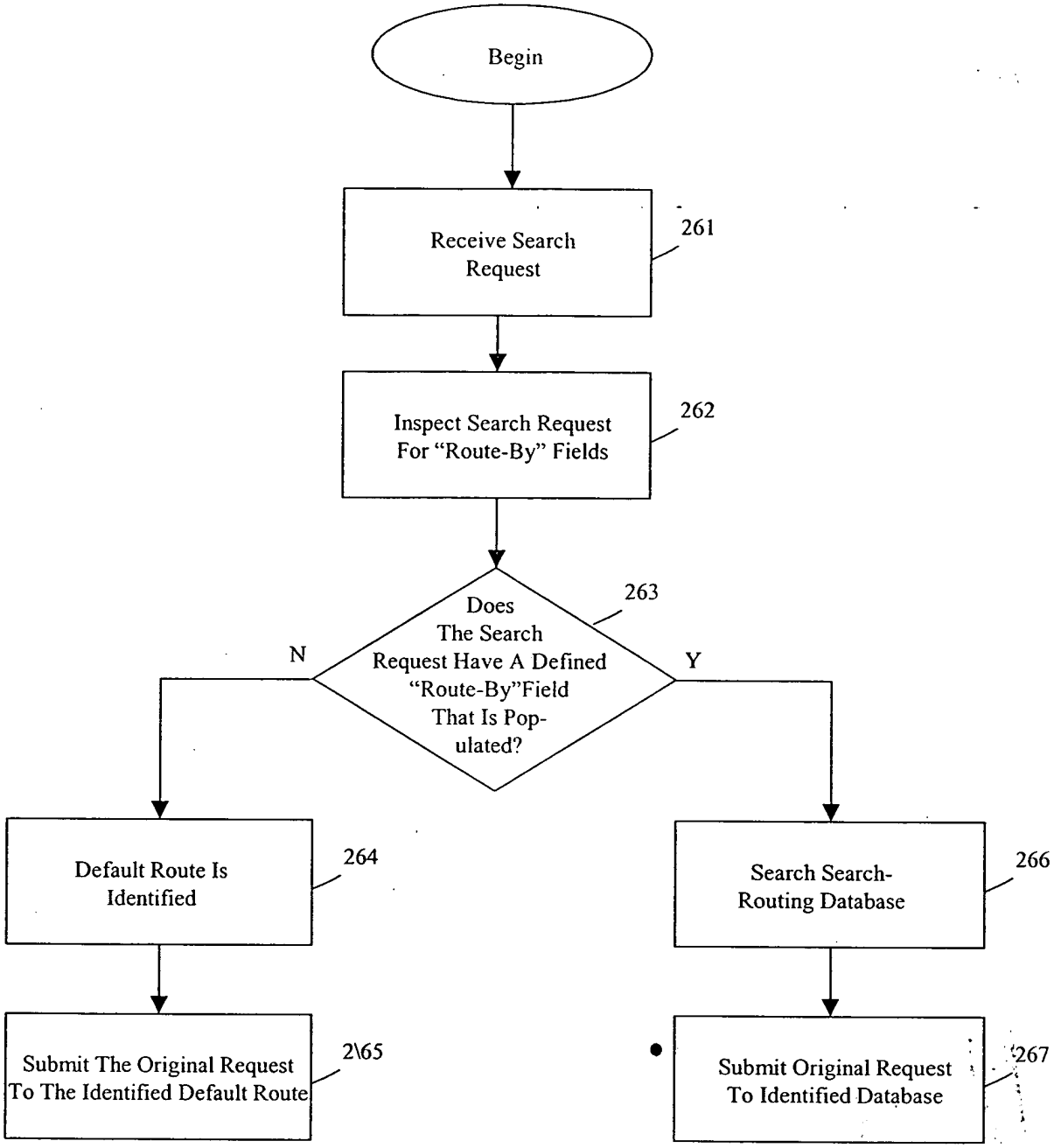
Begin
Receive Search Request
261
Inspect Search Request For "Route-By" Fields
262
Does The Search Request Have A Defined "Route-By"Field That Is Pop-ulated?
263
N
Y
Default Route Is Identified
264
Submit The Original Request To The Identified Default Route
2\65
Search Search-Routing Database
266
Submit Original Request To Identified Database
267

FIG. 10

UPDATE
DATABASE RECORD

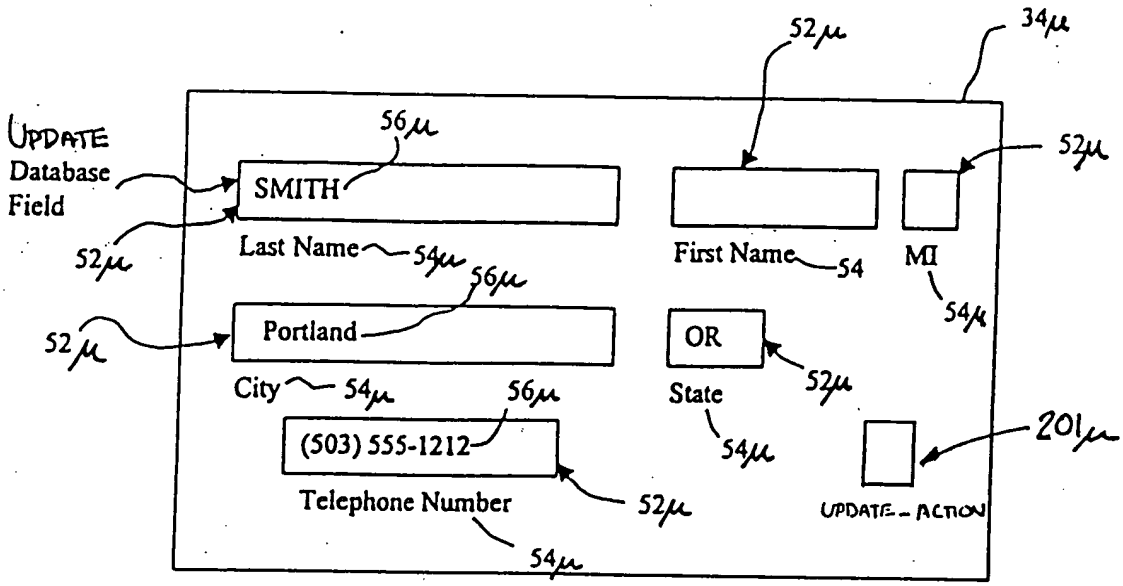

FIG. 10/11A

UPDATE
SEARCH-ROUTING DATABASE RECORD

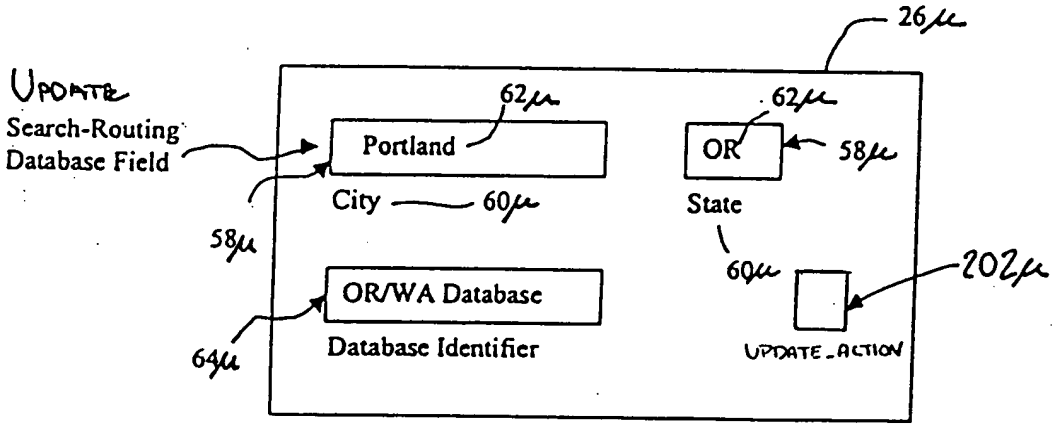

FIG. 11B

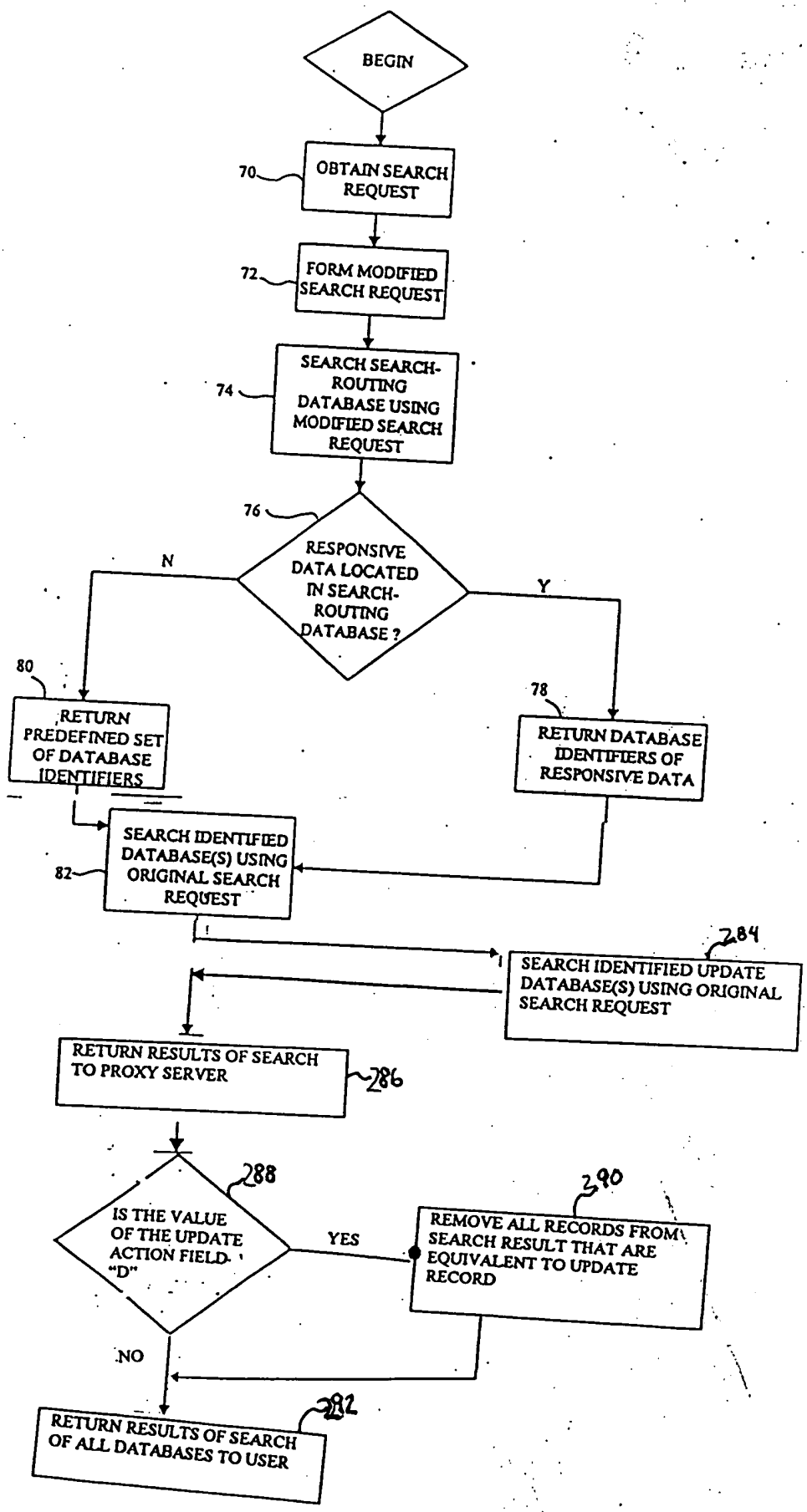
BEGIN
70
OBTAIN SEARCH REQUEST
72
FORM MODIFIED SEARCH REQUEST
74
SEARCH SEARCH-ROUTING DATABASE USING MODIFIED SEARCH REQUEST
76
RESPONSIVE DATA LOCATED IN SEARCH-ROUTING DATABASE ?
N
Y
80
RETURN PREDEFINED SET OF DATABASE IDENTIFIERS
78
RETURN DATABASE IDENTIFIERS OF RESPONSIVE DATA
82
SEARCH IDENTIFIED DATABASE(S) USING ORIGINAL SEARCH REQUEST
284
SEARCH IDENTIFIED UPDATE DATABASE(S) USING ORIGINAL SEARCH REQUEST
RETURN RESULTS OF SEARCH TO PROXY SERVER
286
288
IS THE VALUE OF THE UPDATE ACTION FIELD "D"
YES
290
REMOVE ALL RECORDS FROM SEARCH RESULT THAT ARE EQUIVALENT TO UPDATE RECORD
NO
282
RETURN RESULTS OF SEARCH OF ALL DATABASES TO USER

FIG. 12